DEPARTMENT OF TRANSPORTATION
ENGINEERING SERVICE CENTER
Transportation Laboratory
P. O. Box 19128
Sacramento, California 95819

METHOD OF TEST FOR SPECULAR REFLECTOR MATERIAL

CAUTION: Prior to handling test materials, performing equipment setups, and/or conducting this method, testers are required to read "**SAFETY AND HEALTH**" in Section I of this method. It is the responsibility of the user of this method to consult and use departmental safety and health practices and determine the applicability of regulatory limitations before any testing is performed.

A. SCOPE

This test method describes a procedure for measuring specular reflectance of reflector material for lighting fixtures in units of percent reflectance of a perfect mirror at 45° specular angle.

B. APPARATUS

The apparatus and method of measurement shall be in accordance with ASTM Designation: C 346, except that no correction for the body reflected component is required.

C. CONTROL FACTORS

1. The reflection meter shall be in good condition, free from any light leakage, and with a stable lamp in place. Check to ensure the proper geometric relation of incident light, reflected light, and the test panel, as described in manufacturer's instructions.
2. Regulated voltage should be used to operate the reflection meter whenever possible.
3. Care should be taken in handling the sample to prevent scratching of the surface or bending of the sheet.

D. PREPARATION OF SAMPLE

1. Sample panels shall be 100 by 100 mm with the reflectance surface on the same type of backing used in the finished fixture. Crop ends of the sheet or cuttings are quite adequate as test samples as long as the surface is in good condition when visually inspected. The panel shall be flat, without waves or kinks.
2. Wash the panel in warm water and mild detergent. Then shake the panel and dab it dry with a soft cloth. Do not rub or abrade the panel.

E. TEST PROCEDURE

1. Examine the test panel and, if possible, determine the machine direction of the panel. Mark one edge in the machine direction or, if the machine direction cannot be determined, mark one edge at random.
2. Place the sample panel on the search head with the machine direction mark in

the direction of the exit port or incident light ray. Record the reading of the galvanometer. Rotate the panel 90˚ and record the second reading.

F. CALCULATIONS

No calculations are necessary since the standard is reported in percent reflectance of a perfect mirror.

G. PRECAUTIONS

Care should be taken to keep the sample and standard panels in good condition. Abrasive materials should not be allowed to touch the finished surfaces. Mechanical abuse of the panels will result in distortion of the plane surface, thereby producing an irregular geometric relation to the light beam and test surface. The test surface should not be slid on the reflective meter. On thin-backed reflective sheeting, a flat weight may be necessary to ensure intimate contact between panel and head.

H. REPORTING OF RESULTS

Report specular reflectance in machine direction and 90˚ to machine direction along with any irregularities of the surface or panel. Record the above values on Form TL-6039 and state whether or not these values conform with specifications for the material.

I. SAFETY AND HEALTH

Prior to handling, testing or disposing of any waste materials, testers are required to read: Part A (Section 5.0), Part B (Sections: 5.0, 6.0 and 10.0) and Part C (Section 1.0) of Caltrans Laboratory Safety Manual. Users of this method do so at their own risk.

REFERENCE:

ASTM Designation: C 346

End of Text (California Test 650 contains 2 pages)